

REMARKS/ARGUMENTS

Applicants would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office Action. Favorable reconsideration of the application is requested in view of the remarks and amendments made herein.

Claims 1–4 and 11 were rejected under 35 U.S.C. 102(e) as being anticipated by Kurosawa (U.S. Patent No. 6,709,543). Traversal of this rejection is made for at least the following reasons. Kurosawa does not disclose vacuum-sucking step in which a semiconductor chip adhered to a sheet is bent and deformed *by a vacuum suction force* in an almost same bent shape in a continuous bent range from an outer peripheral portion of one side of the chip to an outer peripheral portion of another one side of the chip thereby to exfoliate the sheet from a lower surface of the semiconductor chip, as required by independent claims 1 and 11. The Examiner contends that in Figs. 18A–21A of Kurosawa, there must have been vacuum forces affecting the chip due to the shape of the chip as shown in Figs. 19A and 20A. The Examiner states that if no vacuum forces were affecting the chip at these points, the chip would remain flat due to its inherent rigidity. Applicants strongly disagree. Kurosawa explicitly states that the semiconductor chip in the third embodiment (Figs. 18A–21A) is made thin. In other words, it is the thinness of the chip that is causing the chip to bend when the thrust pins are moved. The Examiner argues that Fig. 19A shows that the “thrust pins push the outer edges of the chip upward while vacuum pulls the center of the adhesive tape and the center of the chip downward.” Applicants agree that the thrust pins push the outer edges of the chip upward. However, the center of the chip is not pulled downward in Fig. 19A. In fact, the center of the chip remains in the same position as shown in Fig. 18A. The reason the entire chip is not lifted when the outer thrust pins are raised is due to the thinness of the chip and not due to a vacuum. The

arrangement of thrust pins in the third embodiment of Kurosawa is actually arranged to suppress the bending of the semiconductor chip to mitigate cracking. Due to the thinness of the semiconductor chip and the expressed concern of semiconductor chip cracking, it is obvious that no vacuum force would have been used in this embodiment. Further, Kurosawa makes no mention of using a vacuum force in the third embodiment. In contrast, in each of the embodiments where vacuum force is used, it is not only mentioned in the description of the embodiment but also shown in the corresponding figures. See Figs. 12, 14, 16, and 22. Figs. 18A–21A do not show any such vacuum force because a vacuum force is not used in this embodiment. It is also noted that Figs. 12, 14, 16, and 22 all show embodiments in which a vacuum force is used and in each of these embodiments, the vacuum force does not affect the shape of the semiconductor chip, which contradicts the Examiner’s position that a vacuum force is used to affect the shape of the semiconductor chip.

A claim is anticipated only when each and every element as set forth in the claim is found either expressly or inherently described in a single prior art referenced. Using a vacuum force in the third embodiment of Kurosawa is not expressly described; thus, it appears that the Examiner must be relying on inherency in making the present rejection. However to establish inherency, it must be clear that the missing descriptive matter (e.g., the vacuum force) is necessarily present. *Continental Can co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). Further, the mere fact that a certain thing *may* result from a given set of circumstances is not sufficient. *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981). For at least the reasons discussed above, using a vacuum force to change the shape of the semiconductor chip is not inherent in Kurosawa.

Further still, Kurosawa fails to disclose that the semiconductor chip is configured in a rectangular shape, and the bent range is set in a direction which forms a predetermined angle with respect to one side of the semiconductor chip, the bent range including a corner portion of the semiconductor chip, and the predetermined angle being about 45 degrees, as required by claims 1 and 11.

Because Kurosawa does not disclose each and every limitation set forth in independent claim 1 and 11, either expressly or inherently, Kurosawa cannot anticipate such claims. Withdrawal of this rejection and allowance of claims 1–4 and 11 are respectfully requested.

Claims 5–10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Akira (JP 2001-118862) in view of Kurosawa (U.S. Patent No. 6,709,543). Traversal of this rejection is made for at least the following reasons. Neither Akira nor Kurosawa, alone or in combination, teach or suggest that air is vacuum-sucked from suction grooves to bend and deform a semiconductor chip adhered to a sheet together with the sheet thereby to exfoliate the sheet from a lower surface of the semiconductor chip due to the bend deformation, as recited in independent claims 5 and 10. The Examiner concedes that Akira fails to show that the semiconductor chip is bent and thus relies on Kurosawa in an attempt to make up for the deficiencies of Akira. However, Kurosawa fails to disclose, teach, or suggest that air is vacuum sucked to bend and deform a semiconductor chip adhered to a sheet. Rather, Kurosawa only discloses that a semiconductor chip is bent due to the combination of the thinness of the semiconductor chip and the movement of a plurality of thrust pins against a bottom surface of the adhesive sheet. Any vacuum force disclosed in Kurosawa only bends and deforms the adhesive sheet, not the actual semiconductor chip, as required by the subject claims.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. 35857.

Respectfully submitted,
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